

Kidney Transplant

Overview

A kidney transplant is a surgical procedure to place a healthy kidney from a living or deceased donor into a person whose kidneys no longer function properly.

The kidneys are two bean-shaped organs located on each side of the spine just below the rib cage. Each is about the size of a fist. Their main function is to filter and remove waste, minerals and fluid from the blood by producing urine.

When your kidneys lose this filtering ability, harmful levels of fluid and waste accumulate in your body, which can raise your blood pressure and result in kidney failure (end-stage kidney disease).

End-stage renal disease occurs when the kidneys have lost about **90%** of their ability to function normally.

Common causes of end-stage kidney disease include:

- Diabetes
- Chronic, uncontrolled high blood pressure
- Chronic glomerulonephritis — an inflammation and eventual scarring of the tiny filters within your kidneys (glomeruli)
- Polycystic kidney disease

People with end-stage renal disease need to have waste removed from their bloodstream via a machine (dialysis) or a kidney transplant to stay alive.

Why it's done

A kidney transplant is often the treatment of choice for kidney failure, compared with a lifetime on dialysis. A kidney transplant can treat chronic kidney disease or end-stage renal disease to help you feel better and live longer.

Compared with dialysis, kidney transplant is associated with:

- Better quality of life
- Lower risk of death
- Fewer dietary restrictions
- Lower treatment cost

Some people may also benefit from receiving a kidney transplant before needing to go on dialysis, a procedure known as preemptive kidney transplant.

But for certain people with kidney failure, a kidney transplant may be more risky than dialysis. Conditions that may prevent you from being eligible for a kidney transplant include:

- Advanced age
- Severe heart disease
- Active or recently treated cancer
- Dementia or poorly controlled mental illness
- Alcohol or drug abuse
- Any other factor that could affect the ability to safely undergo the procedure and take the medications needed after a transplant to prevent organ rejection

Only one donated kidney is needed to replace two failed kidneys, making living-donor kidney transplantation an option.

If a compatible living donor isn't available, your name may be placed on a kidney transplant waiting list to receive a kidney from a deceased (Cadaver) donor.

Risks

Kidney transplantation can treat advanced kidney disease and kidney failure, but it is not a cure. Some forms of kidney disease may return after transplant.

The health risks associated with kidney transplant include those associated directly with the surgery itself, rejection of the donor organ and side effects of taking medications (anti-rejection or immunosuppressants) needed to prevent your body from rejecting the donated kidney.

Deciding whether kidney transplant is right for you is a personal decision that deserves careful thought and consideration of the

serious risks and benefits. Talk through your decision with your friends, family and other trusted advisors.

Complications of the procedure

Kidney transplant surgery carries a risk of significant complications, including:

- Blood clots and bleeding
- Leaking from or blockage of the tube (ureter) that links the kidney to the bladder
- Infection
- Failure or rejection of the donated kidney
- An infection or cancer that can be transmitted with the donated kidney
- Death, heart attack and stroke

Anti-rejection medication side effects

After a kidney transplant, you'll take medications to help prevent your body from rejecting the donor kidney. These medications can cause a variety of side effects, including:

- Bone thinning (osteoporosis) and bone damage (osteonecrosis)
- Diabetes
- Excessive hair growth or hair loss
- High blood pressure
- High cholesterol

Other side effects may include:

- Increased risk of cancer, particularly skin cancer and lymphoma
- Infection
- Puffiness (edema)
- Weight gain
- Acne

How you prepare

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Evaluation

After you've selected a transplant center, you'll be evaluated to determine whether you meet the center's eligibility requirements for a kidney transplant.

The team at the transplant center will assess whether you:

- Are healthy enough to have surgery and tolerate lifelong post-transplant medications
- Have any medical conditions that would interfere with transplant success
- Are willing and able to take medications as directed and follow the suggestions of the transplant team

The evaluation process may take several days and includes:

- A thorough physical exam
- Imaging studies, such as X-ray, MRI or CT scans
- Blood tests
- Psychological evaluation
- Any other necessary testing as determined by your doctor

After your evaluation, your transplant team will discuss the results with you and tell you whether you've been accepted as a kidney transplant candidate. Each transplant center has its own eligibility criteria. If you aren't accepted at one transplant center, you may apply to others.

What you can expect

Before the procedure

Finding a match

A kidney donor can be living or deceased, related or unrelated to you. Your transplant team will consider several factors when evaluating whether a donor kidney will be a good match for you.

Tests to determine whether a donated kidney may be suitable for you include:

- **Blood typing.** It's preferable to get a kidney from a donor whose blood type matches or is compatible with your own. Blood-type incompatible transplants are also possible but require additional medical treatment before and after

transplant to reduce the risk of organ rejection. These are known as ABO incompatible kidney transplants.

- **Tissue typing.** If your blood type is compatible, the next step is a tissue typing test called human leukocyte antigen (HLA) typing. This test compares genetic markers that increase the likelihood the transplanted kidney will last a long time. A good match means it's less likely that your body will reject the organ.
- **Crossmatch.** The third and final matching test involves mixing a small sample of your blood with the donor's blood in the lab. The test determines whether antibodies in your blood will react against specific antigens in the donor's blood. A negative crossmatch means they are compatible and your body isn't as likely to reject the donor kidney. Positive crossmatch kidney transplants also are possible but require additional medical treatment before and after the transplant to reduce the risk of your antibodies reacting to the donor organ.

Additional factors your transplant team may consider in finding the most appropriate donor kidney for you include matching age, kidney size and infection exposure.

Living kidney donation

Finding a willing living kidney donor is an alternative to waiting for a compatible deceased-donor kidney to become available.

Family members are often the most likely to be compatible living kidney donors. But successful living-donor transplants are also common with kidneys donated from unrelated people, such as friends, co-workers or religious congregation members.

Paired donation is another type of living kidney donation if you have a willing kidney donor whose organ is not compatible with you or does not match well for other reasons. Rather than donating a kidney directly to you, your donor may give a kidney to someone who may be a better match. Then you receive a compatible kidney from that recipient's donor.

In some cases, more than two pairs of donors and recipients may be linked with a nondirected living kidney donor to form a donation chain with several recipients benefitting from the nondirected donor's gift.

If a compatible living donor isn't available, your name will be placed on a waiting list for a deceased-donor kidney. Because there are fewer available kidneys than there are people waiting for a transplant, the waiting list continues to grow. The waiting time for a deceased-donor kidney is usually a few years.

Staying healthy

Whether you're waiting for a donated kidney or your transplant surgery is already scheduled, work to stay healthy. Being healthy and as active as you're able can make it more likely you'll be ready for the transplant surgery when the time comes. It may also help speed your recovery from surgery. Work to:

- Take your medications as prescribed.
- Follow your diet and exercise guidelines.
- Don't smoke. If you need help quitting, talk to your doctor.
- Keep all appointments with your health care team.
- Stay involved in healthy activities, including relaxing and spending time with family and friends.

Stay in touch with your transplant team and let them know of any significant changes in your health. If you're waiting for a donated kidney, make sure the transplant team knows how to reach you at all times. Keep your packed hospital bag handy, and make arrangements for transportation to the transplant center in advance.

During the procedure

Kidney transplants are performed with general anesthesia, so you're not awake during the procedure. The surgical team monitors your heart rate, blood pressure and blood oxygen level throughout the procedure.

During the surgery:

- The surgeon makes an incision in the lower part of one side of your abdomen and places the new kidney into your body. Unless your own kidneys are causing complications such as high blood pressure, kidney stones, pain or infection, they are left in place.
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- The blood vessels of the new kidney are attached to blood vessels in the lower part of your abdomen, just above one of your legs.
- The new kidney's ureter — the tube that links the kidney to the bladder — is connected to your bladder.

After the procedure

After your kidney transplant, you can expect to:

- **Spend several days to a week in the hospital.** Doctors and nurses monitor your condition in the hospital's transplant recovery area to watch for signs of complications. Your new kidney will make urine like your own kidneys did when they were healthy. Often this starts immediately. In other cases it may take several days, and you may need temporary dialysis until your new kidneys begin to function properly. Expect soreness or pain around the incision site while you're healing. Most kidney transplant recipients can return to work and other normal activities within eight weeks after transplant. No lifting objects weighing more than 4 to 5 Kg or exercise other than walking until the wound has healed (usually about six weeks after surgery).
- **Have frequent checkups as you continue recovering.** After you leave the hospital, close monitoring is necessary for a few weeks to check how well your new kidney is working and to make sure your body is not rejecting it. You may need blood tests several times a week and have your medications adjusted in the weeks following your transplant. During this time, if you live in another town, you may need to make arrangements to stay near the transplant center.
- **Take medications the rest of your life.** You'll take a number of medications after your kidney transplant. Drugs called immunosuppressants (anti-rejection medications) help keep your immune system from attacking and rejecting your new kidney. Additional drugs help reduce the risk of other complications, such as infection, after your transplant.

Results

After a successful kidney transplant, your new kidney will filter your blood, and you will no longer need dialysis.

To prevent your body from rejecting your donor kidney, you'll need medications to suppress your immune system. Because these anti-rejection medications make your body more vulnerable to infection, your doctor may also prescribe antibacterial, antiviral and antifungal medications.

It is important to take all your medicines as your doctor prescribes. Your body may reject your new kidney if you skip your medications even for a short period of time. Contact your transplant team immediately if you are having side effects that prevent you from taking your medications.

After your transplant, skin self-checks and checkups with a dermatologist to screen for skin cancer and keeping your other cancer screening up-to-date is strongly advised.

Diet and nutrition

After your kidney transplant, you may need to adjust your diet to keep your new kidney healthy and functioning well. You'll have fewer dietary restrictions than if you were receiving dialysis therapy before your transplant, but you still may need to make some diet changes.

Your transplant team includes a nutrition specialist (dietitian) who can discuss your nutrition and diet needs and answer any questions you have after your transplant.

Some of your medications may increase your appetite and make it easier to gain weight. But reaching and maintaining a healthy weight through diet and exercise is just as important for transplant recipients as it is for everyone else to reduce the risk of heart disease, high blood pressure and diabetes.

You may need to keep track of how many calories you consume or limit foods high in sugar and fat.

Your dietitian will also provide you with several healthy food options and ideas to use in your nutrition plan. Your dietitian's recommendations after kidney transplant may include:

- Eating at least five servings of fruits and vegetables each day

- Avoiding grapefruit and grapefruit juice due to its effect on a group of immunosuppression medications (calcineurin inhibitors)
- Having enough fiber in your daily diet
- Drinking low-fat milk or eating other low-fat dairy products, which is important to maintain optimal calcium and phosphorous levels
- Eating lean meats, poultry and fish

Your dietitian may also recommend:

- Maintaining a low-salt and low-fat diet
- Following food safety guidelines
- Staying hydrated by drinking adequate water and other fluids each day

Exercise

Once you recover from your transplant surgery, exercise and physical activity should be a regular part of your life to continue improving your overall physical and mental health.

After a transplant, regular exercise helps boost energy levels and increase strength. It also helps you maintain a healthy weight, reduce stress, and prevent common post-transplant complications such as high blood pressure and cholesterol levels.

Your transplant team will recommend a physical activity program based on your individual needs and goals.

Soon after your transplant, you should walk as much as you can. Gradually, start incorporating more physical activity into your daily life, including participating in at least 30 minutes of moderate exercise five days a week.

Walking, bicycling, swimming, low-impact strength training and other physical activities you enjoy can all be a part of a healthy, active lifestyle after transplant. But be sure to check in with your transplant team before starting or changing your post-transplant exercise routine.